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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/574,874

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EXAMINER

BADR, HAMID R

ART UNIT

PAPER NUMBER

1781

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/574,874	<b>Applicant(s)</b> KAEHNE, IAN DAVID	
	<b>Examiner</b> HAMID R. BADR	<b>Art Unit</b> 1781	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 36-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 36-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/4/2010 has been entered.

Claims 36-53 are being considered on the merits.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 36- 53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 36 and 48 are indefinite for "enhancing the taste of a beer". The term "enhance" is a relative term which renders the claim indefinite. The term is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear over what standard this is to be "enhancing".

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3. Claims 36 and 48 are also indefinite for “mineral additive enhances taste characteristic”. As mentioned above, one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.
4. Claims 36 and 48-49 are indefinite for “finished base beer”. It is not clear whether the finished base beer is the beer before diluting with water or after diluting with water. In other words it is not clear whether the minerals are added to the diluted beer or undiluted beer.
5. Claims 48-49 are indefinite for “before gassing with carbon dioxide” or “has been gassed with carbon dioxide”. It is not clear whether the beer is carbonated or simply exposed to carbon dioxide. The phrase does not appear to be a common phrase in the art.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
2. Claims 36-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donhowe (US 2003/0157218; hereinafter R1) in view of Costa (WO 01/68534; hereinafter R2), Lindon et al. (US 5,786,006; hereinafter R3) and Alcazar et al. (2002, Multivariate characterization of beers according to their mineral content; hereinafter R4).

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3. R1 discloses a process for the preparation of a sport beer or malt beverage that has enhanced nutrition in comparison to the existing beer or malt beverage. The beverage comprises a beer or malt beverage that contains supplements such as minerals, vitamins, anti-oxidants, proteins etc. (Abstract).

4. R1 discloses the process for the production of the sport beer as consisting of a brewing process wherein barley malt grain is milled, mixed with hot water, and carbohydrates are saccharified and fermented using yeast. After the fermentation by yeast, the yeast is separated and lagering or the maturation of the beer is carried out. The beer is transferred to a finishing tank where supplements such as calcium, zinc and/or iron are added. The supplements such as minerals or proteins or antioxidants are dissolved in water prior to the addition to the beer. [0017].

5. Given that the minerals or other supplements are dissolved in water before adding to the beer, it is clear that the beer will be diluted as presently claimed.

6. Given that the supplements are dissolved in water, it is clear that any dilution of the beer can be effectuated by those of skill in the art. The presently claimed dilution of 0.5% to 90% of the original strength of the beer is obvious.

7. Additionally R1 claims a beverage having 0.45%-10% alcohol (R1 Claim 2). It is obvious that such a beer can represent the dilutions as presently claimed.

8. Given that R1 discloses the process for making the original beer, it is obvious that any kind of beer such as stout beer, pilsner beer, light beer, extra light beer, medium strength beer etc. can be diluted and then formulated with the minerals and other supplements.

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9. The pH range of 3.5-5.0 is intrinsic to all beers. It is obvious that the pH of the diluted beer will be adjusted to preserving the taste of the beer and also for the preservation of the beer. The variability of pH in different beer types is also known to the people of skill in the art. The low pH of the product will also help the solubility of minerals in the diluted beer.

10. While R1 clearly is motivating for the supplementation of beer or malt beverages, it is silent regarding the groups of minerals as presently claimed.

11. R2 discloses additives for drinks and potable water. (Title and Abstract)

12. R2 discloses that the additive which could be solids, liquids etc can be dissolved into drinks including beers and wines (page 2, Definition).

13. R2 discloses the mineral additives to include calcium 0-300 mg, Chlorine 0-60 mg, fluor 0-4 mg, chromium 0-50 microgram, iron 0-40 mg, phosphorus 0-300 mg, iodine 0-300 microgram, magnesium 0-200 mg, manganese 0-5 mg, potassium 0-80 mg, selenium 0-50 microgram, sodium 0-150 mg, zinc 0-30 mg, copper 0-4 mg, gold 0-20 microgram, silver 0-20 microgram, tin 0-20 microgram, molybdenum 0-50 microgram, nickel 0-10 microgram, silicon 0-20 microgram, vanadium 0-20 microgram. (pages 13-15). The amounts are based on the daily human consumption. Therefore, a serving size can be designed to supply for instance 150 mg of calcium for a daily consumption.

14. It is also noted that heavy metals are also found in natural waters in part per billion (ppb) concentrations. The concentration of such elements in municipal and

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industrial waters can be found in water analysis reports. Any adjustments due to dilutions can be made accordingly by an artisan.

15. Given the spectrum of minerals, which can be added to beer, as disclosed by R2 and considering the fact that dilution of beer with water, to make low alcohol beer, will decrease the concentration of minerals, the addition of mineral additives to a diluted beer would have been obvious to one of ordinary skill in the art. On the other hand, the determination of the concentration of minerals in an undiluted beer is routine in the art. Therefore, determining how much of each element is present in an undiluted beer would have been obvious as well. The problem to be solved is then adding the mineral type, relative to a specific type of beer, to the diluted beer to bring up the concentration of that element to the undiluted level. The mineral profile of certain beer types are known in the art, therefore, adding the mineral whose concentration is decreased due to diluting the beer is obvious.

16. Since the common forms of these chemicals is the dry form, it is obvious to use the dry form as presently claimed. It is also obvious that calcium and magnesium compounds should be brought into solution if compounds are not water soluble as presently claimed. It is obvious that carbonated beverages are produced using carbon dioxide as presently claimed. The form of mineral supplements which can be used in human nutrition are also known in the art.

17. The solubility of the minerals in water and in the presence of other chemicals may necessitate the inclusion of acids and buffers as presently claimed. It would be obvious to those of skill in the art to include acids either organic or inorganic as well as

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buffers to sustain the solubility of the added minerals in the beer or beverage. It would also be obvious to use acids such as phosphoric acid both for dissolution of minerals and for the organoleptic properties of this acid. Use of phosphoric acid in regular beverages is known in the art of beverages. Further, inclusion of buffering salts such as potassium phosphate and potassium hydrogen phosphate in low alcohol beers is known in the art. The addition of potassium phosphate and potassium hydrogen phosphate to a diluted beer is specifically known to enhance flavor of the beer.

18. R1 and R2 are silent regarding the incorporation of lithium into the beverage.

19. R3 discloses incorporating lithium at 0.06-0.15 mg/L of mineral water (Abstract).

20. R1, R2, and R3 are silent regarding the mineral content and quality characteristics of beers regarding their mineral content.

21. R4 investigates the characterization of beer samples according to their mineral content. R4 discloses the determination of Zn, P, B, Mn, Fe, Mg, Al, Sr, Ca, Ba, Na and K in 32 beer samples. (Abstract)

22. R4 discloses that low alcohol beers are growing fast which is due to the attainment of better tasting products. Cereals, water, hops and yeast as well as industrial processing and containers may be the source of minerals present in beer.

(page 45, Introduction )

23. R4 concludes that the chemometric approach in determining the mineral content provides a suitable method to differentiate beer samples. (page 52, conclusion) Given that mineral content of beers are different and even within a specific type of beer certain elements are more abundant than others, it is obvious that dilution of the beer will affect



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the normal levels of the mineral constituents and certain elements will be even affected more than others with special reference to elements of lower concentration. Therefore, adding minerals (depending on the type of beer) will enhance the taste, body and mouthfeel of the diluted beer.

24. Therefore, the role of minerals in characterization of beers was known at the time the invention was made. Further, R1 clearly gives the motivation for adding supplements including minerals to the beer with reduced alcohol (diluted beer). R2 also gives the details of the type and concentration of minerals which can be added to drinks including beer and wine. Since diluting any beer ( for the sake of lowering alcohol content) will cause a decrease in the concentration of constituting minerals in a specific volume of the product, it would be obvious to those of skill in the art to add the minerals as taught by R1 and R2 and R3 at least to a level which is ordinarily found in undiluted beers. One would do so to compensate for at least the effect of diluting a drink such as beer on the taste and mouthfeel. Absent any evidence to contrary and based on the combined teachings of the cited references, there would be a reasonable expectation of success in creating a diluted beer containing minerals.

### ***Response to Arguments***

Applicants' arguments have been thoroughly reviewed. These arguments are not persuasive for the following reasons.

1. Applicants argue that the present invention "does not simply replace the minerals diluted as a result of reducing the level of alcohol or dilution of the fished base during

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the dilution step to bring the mineral content to a certain range". However, elsewhere in their argument; the Applicants state that "the present inventor found that the addition of certain levels of a complex mixture or minerals enhance the capacity to dilute beers by compensating somewhat for the reduction and disruption of flavors and taste characteristics commensurate with dilution".

a. The mineral content of beers has definite effect on the taste perception of the beers. Diluting the beer would reduce the minerals per volume of the diluted beer. It is obvious that adding minerals, depending on the type of beer, will partially compensate for the diluted flavor due to the presence and interaction of minerals. However, since the type of minerals and their normal concentrations were known, at the time of invention, at least for certain types of beer, the determination of the levels to be safely added to the diluted beers was only an optimization process well within the skill of the art.

2. Applicants argue that Donhowe (R1) discloses adding minerals during the preparation process to increase the nutritional value.

a. R1 adds the minerals to the fermented beer. Please see above. However, since the minerals have to be added sometime before the end product is ready for consumption, then the addition would be "during the preparation". As such, the present invention is also adding the minerals "during the preparation". Therefore, Applicants are mischaracterizing the Donhowe reference.

3. Applicants argue that the mineral additive enhances taste characteristics of the finished base beer.

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a. It is obvious that adding minerals to beer would change the taste. The extent to which minerals could be added was a matter of optimized levels of such minerals as disclosed by the references.

4. Applicants argue that a specific amount of a unique composition, which is constant for a specific type of beer, on top of the minerals already present, is added.

a. R4 clearly discloses that various type of beers differ in their mineral constituents. Composing a specific combination of minerals and constantly adding to a certain type of beer would have been obvious in light of the teachings of R4.

5. Applicants argue that Donhowe does not teach adding the minerals to the finished beer.

a. Please see paragraph [0017] to see that minerals are added to the finished beer (beer after completion of fermentation).

6. Applicants argue that regarding claim 48, Donhowe fails to teach the step of diluting the base beer to form a diluted beer and then adding the mineral additive to the diluted beer.

a. It should be realized that Donhowe discloses a diluted beer containing minerals. The order of addition of minerals to the diluted beer will be considered obvious.

7. Applicants argue that the concentrations defined in the claims for each one of the minerals is not the concentration of minerals found on the standard beer.

a. The Examiner agrees that these concentrations may not be the normal levels of such minerals in the beers, however, fortifying the beer with minerals and optimizing for

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safe levels of such minerals would have been obvious based on the teachings of the references.

8. Applicants refer to Alcazar (R4) for certain explanations in Table 3. Applicants then make a comparison of what is disclosed by Alcazar and what is presently claimed.

a. This reference, Alcazar et al. 2000, was introduced by the Examiner as a relevant reference. Therefore, the Examiner is fully aware of the contents. Applicants should realize the fact that the presently claimed invention is obvious in light of such a reference. However, levels of elements as presently claimed may be different levels of elements in beer compared with the reported levels of the references. However, the rejections are obviousness type rejections and a comparison of data does not prove the unobviousness of the invention.

9. Applicants argue that Costa does not overcome the deficiencies of Donhowe.

a. Costa discloses the addition of various groups of elements including the presently claimed elements. Further, Costa discloses that the disclosed minerals can be added to beer and wine. This is a fundamental motivation. additionally, Costa discloses the safe levels of minerals to be added to such beverages. The critical ranges of elements that the Applicants are referring to, in the presently claimed invention, can be determined by optimization methods well within the skill of the art.

10. Applicants argue that it is well known in the art that several minerals tend to have adverse effect on taste, thus for example calcium and magnesium are known to impact an earthy flavor to water.

a. The impact of calcium and magnesium to the taste of water is not relevant to the presently claimed invention.

11. Applicants argue that it has been found that by the addition of the specific combination of minerals to beers of all strengths that flavor and taste perceptions are enhanced compared with diluted beer which are only being diluted with water.

a. That finding is obvious. Adding mineral salts to any food or beverage would change the taste. Table salt has been known as a flavor enhancer for hundreds of years.

12. Applicants argue that Lindon refers to mineralized water and that there is no reference to adding compounds such as lithium to enhance the flavor of beer.

a. Lindon discloses the addition of an element like lithium to a beverage by showing the safe levels of this element in the beverage. The motivation in prior art does not negate the obviousness of the claimed invention. *In re Dillon*, 16 USPQ2d 1897 (Fed. Cir. 1990), *In re Tomlinson*, 150 USPQ 623 (CCPA 1966).

13. Applicants argue that Lindon reference does not overcome the deficiencies of the Donhowe reference.

a. Lindon is a teaching reference and does not have to repeat the teachings of the primary reference.

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**Conclusion**

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 4,788,066 discloses the addition of potassium phosphate and potassium hydrogen phosphate to low alcohol beer to enhance flavor.

Matsushige, I; de Oliveira, E. 1993. Food Chem. 47:205. This reference reports on the levels of Co, Cr, Cu, Fe, Pb, and Zn in canned and bottled beers. The results showed the good quality of the beers with respect to their metal content.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HAMID R. BADR whose telephone number is (571)270-3455. The examiner can normally be reached on M-F, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner  
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